



Kentucky Academic Course Code List

Science Courses
without Certification

Kentucky Academic Course Codes

The Kentucky Department of Education (KDE) initiated a course code project under the direction of Commissioner Pruitt in January 2017. The project ensures Kentucky is providing equitable opportunity and access to research-based student experiences that impact student success.

The results of the project include an alignment of core academic course codes to Kentucky Academic Standards. The standards aligned to the core academic course codes cannot be changed. The alignment serves as a guarantee to students across the Commonwealth that all students have equitable access to Kentucky Academic Standards. The project also provides an alignment to Kentucky's new Accountability System, 703 KAR 5:270, which measures opportunity and access provided to students across Kentucky.

The Kentucky Academic Course Code List contains a listing of course codes and descriptions along with certifications that fit the parameters for given courses. The content listed for a course cannot be changed; however, the grade range and population information listed for each course are not absolute and can vary slightly depending on the needs of the school and teacher certifications. Districts should choose the course that most closely represents the content in a given course. ***The description and content of a course are the determining factors in what should be selected.***

Contact Information:

- Districts may contact CourseCodes@education.ky.gov with questions pertaining to course codes, course content and course-standards alignment.
- Districts may contact the EPSB Division of Certification at (502) 564-4606 or dcert@ky.gov with question pertaining to certification.
- Districts may contact KHEAA at (502) 696-7397 or kees@kheaa.com with questions pertaining to KEES eligibility.

HOW TO USE THIS DOCUMENT

This document contains a listing of course codes and descriptions along with certifications that fit the parameters for given courses. The grade range listed for each course are not absolute. Please choose the course that most closely represents the content in a given course.

EXAMPLE

John Q Middle School had 5th, 6th, and 7th grade students taking a Visual Art course. This course would be linked to course number **500711: Visual Art – Comprehensive**, which shows a recommended grade range of 6 – 12.

Schools will link their courses on the Infinite Campus “Course Master” tab OR in the “Course” tab to courses listed in this document.

Schools may have created courses that are very unique in order to meet students’ needs. If a course does not meet the definition or content of one contained in this document, please use course number **909999: School Defined Course**, and define the correct content through the LEAD report.

The course code 909999 should be used in situations where a current course code does not exist and there are no existing Kentucky Academic Standards aligned to the course. Local Boards of Education should approve the use of a district's use of a 909999 course code *before* a district begins utilizing it within Infinite Campus. Please see the [Guiding Principles For Using Course Code 909999](#) for more information.

CERTIFICATIONS

It is important to note that the certificates listed are the ones that fit ***ALL*** of the parameters for a specific course; there may be other certificates that can teach it with slightly more restrictive parameters.

Please take note of the following information from *The Kentucky Academic Standards* with regard to middle school courses that are offered for high school credit.

High School Credit Earned in Middle School

It is expected that most students will earn high school credits during their high school years. However, local school districts may offer high school courses to middle level students if the following criteria are met:

- the content and the rigor of the course are the same as established in the *Kentucky Academic Standards*
- the students demonstrate mastery of the middle level content as specified in the *Kentucky Academic Standards*
- the district has criteria in place to make reasonable determination that the middle level student is capable of success in the high school course
- **the middle level course is taught by teachers with either secondary or middle level certification with appropriate content specialization**

Although middle level courses list the Provisional and Standard Elementary Certificates, Grades 1-8 as allowable under the parameters of these courses, they will not meet the above requirements for courses that are offered for high school credit.

This document is a guide; therefore the EPSB disclaims any warranties as to the validity of the information in this document. Users of this document are responsible for verifying information received through cross-referencing the official record in the EPSB's Division of Certification. The EPSB shall not be liable to the recipient, or to any third party using this document or information obtained therefrom, for any damages whatsoever arising out of the use of this document.

Science

(300000)

Science - Elementary/Middle (300100)

300155 - Integrated Science 5

Grade Level: 5 - 5

Credits:

Description: In this course, students are engaged in experiences related to properties and changes of matter, interaction of the Earth's systems, and energy transfer within ecosystems, as outlined in the Kentucky Academic Standards for Science. The use of the science practices describes the behaviors students will engage in as they investigate the natural world. The use of the engineering practices describe behaviors students will use as they design and build models and systems.

Content: Integrated Science (Non-High School)

Population: General

[300155 Integrated Science 5 Course Standards Document](#)

300166 - Integrated Science 6

Grade Level: 6 - 6

Credits:

Description: In this course, students are engaged in experiences demonstrating structure and properties of matters, motion and forces, biodiversity, Earth in the Solar System, and Earth's systems as described in the Kentucky Academic Standards for Science. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the tools students will use, and skills they develop, as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Integrated Science (Non-High School)

Population: General

[300166 Integrated Science 6 Course Standards Document](#)

300177 - Integrated Science 7

Grade Level: 7 - 7

Credits:

Description: In this course, students are engaged in experiences that demonstrate chemical reactions, energy transfer, forces, information processing, and genetics as described in the Kentucky Academic Standards for Science. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the tools students will use, and skills they develop, as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Integrated Science (Non-High School)

Population: General

[300177 Integrated Science 7 Course Standards Document](#)

300188 - Integrated Science 8

Grade Level: 8 - 8

Credits:

Description: In this course, students will be engaged in experiences which will connect their understandings about Life, Earth and Space, and Physical Science concepts experienced in grades 6 and 7. These connections should be related to human impact, as described in the Kentucky Academic Standards for Science. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the tools students will use, and skills they develop, as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Integrated Science (Non-High School)

Population: General

[300188 Integrated Science 8 Course Standards Document](#)

300190 - Middle School STEM

Grade Level: 6 - 8

Credits:

Description: This course is one designed to allow students to explore the sciences, in a STEM environment, beyond the Kentucky Academic Standards. Students should, however, explore using the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains in the STEM fields.

Content: Pre-Engineering

Population: General

Science - High School Life Science (302600)

302601 - Biology 1

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of biological sciences, as outlined in the Kentucky Academic Standards for Science. They experience concepts such as the cellular organization; molecular basis of heredity; biological change; interdependence of organisms; matter, energy and organization in living systems; and behavior of organisms. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the tools students will use, and skills they develop, as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Life Science

Population: General

[302601 Biology I Course Standards Document](#)

302602 - Biology 2

Grade Level: 9 - 12

Credits: 1

Description: This is a second-level biology course for average or college track students.

Content: Biology

Population: General

302611 - Biochemistry

Grade Level: 9 - 12

Credits: 1

Description: Major concepts addressed in this course include biochemical evolution, macromolecules, metabolism, glycolysis, photosynthesis, and respiration.

Content: Biochemistry

Population: General

302612 - Botany

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of the plant kingdom, including plant evolution, classification, plant ecology, and domestic plants.

Content: Botany

Population: General

302613 - Microbiology

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of microbiological techniques, viruses, fungi, protozoans, bacteria, and pathogenic organisms.

Content: Microbiology

Population: General

302614 - Ecology

Grade Level: 9 - 12

Credits: 1

Description: Students will develop understanding of ecological concepts as outlined in the Kentucky Academic Standards for Science, such as cycling of matter, biodiversity, ecosystems, earth systems and human impact. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Ecology

Population: General

[302614 Ecology Course Standards Document](#)

302615 - Zoology

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of the animal kingdom, including organ systems and dissection.

Content: Zoology

Population: General

302616 - Forensics

Grade Level: 9 - 12

Credits: 1 credit

Description: This course is a problem-based inquiry course dealing with Forensic sciences.

Content: Forensic Science

Population: General

302618 - Medical Science

Grade Level: 9 - 12

Credits: 1

Description: This course uses health occupations as a vehicle to present the life science content outlined in the Kentucky Academic Standards for Science. The course is interdisciplinary in nature and integrates academic expectations and activities with the disciplines of life science, mathematics, health, social studies, language arts, arts and humanities, and vocational studies. During their study

of medical science, students will gain an understanding of the normal structure and function of the human body through scientific inquiry. Life science conceptual understandings, applications, and connections make this science relevant to students. Anatomy, physiology, physics, and chemistry concepts are reinforced with real-life analogies and health-related examples are used to illustrate potentially difficult scientific concepts.

Content: Medical Science for the Life Science Component within the Science Requirement

Population: General

302621 - Marine Biology

Grade Level: 9 - 12

Credits: 1

Description: This course addresses key concepts related to marine science, including ocean zones, seawater, habitats, and marine taxonomy.

Content: Marine Biology

Population: General

302623 - IB Environmental Systems

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. This course may include, but is not limited to, the topics from the Environmental Systems Standard Level syllabus specified by the International Baccalaureate Organization. Topics may include: systems and models, the ecosystem, global cycles and physical systems, human population and carrying capacity, analyzing ecosystems, impacts of resource exploitation and conservation & biodiversity, pollution management.

Content: Ecology

Population: General

302631 - Anatomy

Grade Level: 9 - 12

Credits: 1

Description: Major concepts addressed in this course include plant structure, animal structure, tissues, organs, and systems.

Content: Anatomy and Physiology

Population: General

302644 - IB Biology 2

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Biology.

Content: Life Science

Population: General

302645 - IB Biology 3

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Biology.

Content: Life Science

Population: General

302646 - AP Biology

Grade Level: 9 - 12

Credits: 1

Description: AP Biology is an introductory college-level biology course. Students cultivate their understanding of biology through inquiry-based investigations as they explore the following topics: evolution, cellular processes & energy and communication, genetics, information transfer, ecology, and interactions. College credit is earned with a qualifying score on an AP exam.

Content: AP Biology

Population: General

302651 - Human Physiology

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of the human body, including nutrition concepts, digestive system, circulatory system, nervous system, and the reproductive system.

Content: Anatomy and Physiology

Population: General

302661 - Genetics

Grade Level: 9 - 12

Credits: 1

Description: Major concepts addressed in this course include mutation, heredity, genetic principles, DNA and RNA, recombination, and viruses.

Content: Life Science

Population: General

302680 - AgriBiology

Grade Level: 9 - 12

Credits: 1

Description: This one-credit course uses agricultural contexts to present the life science content outlined in the Kentucky Academic Standards for Science. As students study practical agricultural concepts, they apply scientific ways of thinking and working to real-life problems. During their study of agri-biology, students perform many practical tasks. Students develop an understanding of many concepts such as cell structure and function, morphology and physiology of agriculturally significant animals, heredity principles and inheritance patterns, genetic engineering, animal behavior, biological

change, interdependence of plants and animals, and the flow of matter and energy through ecosystems. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Agribiology for Life Science Credit

Population: General

[302680 AgriBiology Course Standards Document](#)

302698 - Intro Biology with Earth/Space Science

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of Biology and Earth/Space Science. They experience biology and Earth/space science concepts, as outlined in the Kentucky Academic Standards for Science, such as structure and function of cells; molecular basis of heredity; biological change; changes in the Earth system; interdependence of organisms; matter, energy and organization in living systems; and the behavior of organisms. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. For this model the suggested sequence is Introductory Physics with Earth/Space Science, Introductory Chemistry with Earth/Space Science, and Introductory Biology with Earth/Space Science.

Content: Life Science

Population: General

[302698 Intro Biology with Earth/Space Science Course Standards Document](#)

Science - High School Integrated (303000)

303010 - Astrobiology

Grade Level: 9 - 12

Credits: 1

Description: This is an inquiry-based course designed around the scientific study of life in the universe--its origin, evolution, distribution and future. This multidisciplinary course brings together the physical and biological sciences to address some of the most fundamental questions of the natural world: How do living systems emerge? How do habitable worlds form and how do they evolve? Does life exist on worlds other than Earth and what forms may they take? Approval to offer this course must be made on an individual basis. Approval will be based upon the relative proportions of science disciplines addressed in the course syllabus and the credentials of the assigned teacher.

Content: Integrated Science 4

Population: General

303051 - Conceptual Progression Science I

Grade Level: 8 - 12

Credits: 1

Description: Students will develop a conceptual understanding of key disciplinary core ideas (DCI) as defined in the Kentucky Academic Standards for Science. Students examine the Physical Science Disciplinary Core Ideas (DCI) of Structure & Properties of Matter, Chemical Reactions, Conservation of Energy & Energy Transfer, Definitions of Energy, Forces & Motion, Types of Interactions and Wave Properties. Life science DCI examined are Interdependent Relationships in Ecosystems. Earth/Space Science DCI are the Earth & the Solar System, Natural Resources, Plate Tectonics & Large-scale Interactions and The Roles of Water in Earth's Surface Processes. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course is designed to be offered as the first course of a sequence that includes 303052 Conceptual Progressions Science II and 303053 Conceptual Progressions Science III.

Content: Conceptual Progression Science 1

Population: General

[303051 Conceptual Progression Science I Course Standard Document](#)

303052 - Conceptual Progression Science II

Grade Level: 9 - 12

Credits: 1

Description: This lab based course students will develop a conceptual understanding of key disciplinary core ideas (DCI) as defined in the Kentucky Academic Standards for Science. The Physical Science DCI of Energy & Processes in Everyday Life, Relationship between Energy & Forces, Information Technologies and Instrumentation and Electromagnetic Radiation. Life science DCI examined Structure & Function, Growth & Development of Organisms, Organization For Matter &

Energy Flow in Organisms, Cycles of Matter & Energy Transfer in Ecosystems, Inheritance of Traits and Variation of Traits. Earth/Space Science DCI are The Universe & its Stars, Earth Materials & Systems, Weather & Climate and Natural Hazards. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course is designed to be offered as the middle course of a sequence that includes 303051 Conceptual Progressions Science I and 303053 Conceptual Progressions Science III.

Content: Conceptual Progression Science 2

Population: General

[303052 Conceptual Progression Science II Course Standards Document](#)

303053 - Conceptual Progression Science III

Grade Level: 9 - 12

Credits: 1

Description: In this lab based introductory course students will develop a conceptual understanding of key disciplinary core ideas (DCI) as defined in the Kentucky Academic Standards for Science. Students examine the Physical Science Disciplinary Core Ideas (DCI) of Nuclear Processes and Stability & Instability in Physical Systems. Life science DCI examined are Information Processing, Ecosystem Dynamics Functioning & Resilience, Social Interaction & Group Behavior, Evidence of Common Ancestry & Diversity, Natural Selection, Adaptation, and Biodiversity & Humans. Earth/Space Science DCI are History of Planet Earth, Biogeology, Human Impacts on Earth Systems and Global Climate Change. The science and engineering practices are the skills students will use as they investigate the natural world, and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course is designed to be offered as the culmination of a sequence that includes 303051 Conceptual Progressions Science I and 303052 Conceptual Progressions Science II.

Content: Conceptual Progression Science 3

Population: General

[303053 Conceptual Progression Science III Course Standards Document](#)

303091 - Integrated Science I

Grade Level: 9 - 12

Credits: 1

Description: This lab-based introductory course is organized based on the topical structure contained in the Kentucky Academic Standards for Science. Integrated Science I includes those standards listed within the topics of: Structure and Properties of Matter, Chemical Reactions, Structure and Function, Interdependent Relationships in Ecosystems, and Earth's Systems. These topics provide the foundational concepts needed for successive Integrated Science courses to build upon. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course is intended to be offered as the first course of a sequence that includes 303092 Integrated Science II and 303093 Integrated Science III. Students may be required to complete an EOC exam upon completion of this course, depending upon their individual course sequence.

Content: Integrated Science 1

Population: General

[303091 Integrated Science I Course Standards Document](#)

303092 - Integrated Science II

Grade Level: 9 - 12

Credits: 1

Description: This lab-based intermediate course is organized based on the topical structure contained in the Kentucky Academic Standards for Science. Integrated Science II includes those standards listed within the topics of: Forces and Interactions, Energy, Matter and Energy in Organisms and Ecosystems, Weather and Climate, and Human Sustainability. These topics build upon and extend the foundational concepts introduced in Integrated Science I. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course is intended to be offered as the middle course of a sequence that includes 303091 Integrated Science I and 303093 Integrated Science III. Approval to offer this course must be made on an individual basis. Approval will be based upon the relative proportions of science disciplines addressed in the course syllabus and the credentials of the assigned teacher.

Content: Integrated Science 2

Population: General

[303092 Integrated Science II Course Standards Documents](#)

303093 - Integrated Science III

Grade Level: 9 - 12

Credits: 1

Description: This lab-based culminating course is organized based on the topical structure contained in the Kentucky Academic Standards for Science. Integrated Science II includes those standards listed within the topics of: Waves and Electromagnetic Radiation, Inheritance and Variation of Traits, Natural Selection and Evolution, Space Systems, and History of Earth. These topics unify, extend, and complete the conceptual understandings contained in the Kentucky Academic Standards for Science. Students will learn these core ideas within these topics through the use of the science and engineering

practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. This course is intended to be offered as the culminating course of a sequence that includes 303091 Integrated Science I and 303092

Integrated Science II. Approval to offer this course must be made on an individual basis. Approval will be based upon the relative proportions of science disciplines addressed in the course syllabus and the credentials of the assigned teacher.

Content: Integrated Science 3

Population: General

[303093 Integrated Science III Course Standards Documents](#)

Science - High School Physical Sciences (304000)

304021 - Physical Science

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of physical science, as outlined in the Kentucky Academic Standards for Science. They experience physical science concepts such as structure of atoms, structure and properties of matter, chemical reactions, motions and forces, conservation of energy and increase in disorder, and interactions of energy and matter. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Physical Science

Population: General

[304021 Physical Science Course Standards Document](#)

304058 - Introduction to Chemistry and Physics

Grade Level: 9 - 12

Credits: 1

Description: This course serves as an introduction which integrates the basic concepts of chemistry and physics as outlined in the Kentucky Academic Standards for Science. Students learn how the physical and chemical properties of matter can be explained and predicted in terms of atomic and molecular structures and forces. They also learn how balanced and unbalanced forces influence the behavior of objects. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Intro to Chemistry and Physics

Population: General

[304058 Introduction to Chemistry and Physics Course Standards Document](#)

304521 - Chemistry I

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on problem solving techniques; bonding; equilibrium; equations. Students develop a conceptual understanding of chemistry content, outlined in the Kentucky Academic Standards. Students will learn these core ideas within these topics through the use of the science and

engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Chemistry

Population: General

[304521 Chemistry I Course Standards Documents](#)

304522 - Chemistry II

Grade Level: 9 - 12

Credits: 1

Description: This college level course focuses on the study of the structure of matter, chemical kinetics, solution chemistry, and laboratory techniques.

Content: Chemistry

Population: General

304524 - IB Chemistry 2

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Chemistry.

Content: Chemistry

Population: General

304525 - IB Chemistry 3

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Chemistry.

Content: Chemistry

Population: General

304526 - AP Chemistry

Grade Level: 9 - 12

Credits: 1

Description: The AP Chemistry course provides students with a college-level foundation to support future advanced course work in chemistry. Students cultivate their understanding of chemistry through inquiry-based investigations, as they explore topics such as: atomic structure, intermolecular forces and bonding, chemical reactions, kinetics, thermodynamics, and equilibrium. College credit is earned with a qualifying score on an AP exam.

Content: AP Chemistry

Population: General

304598 - Intro Chemistry with Earth/Space Science

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of Chemistry and Earth/Space Science, as outlined in the Kentucky Academic Standards for Science, through the use of the science and engineering practices. They experience chemistry and Earth/space science concepts such as the structure of atoms, structure and properties of matter, chemical reactions, geochemical cycles, and formation and ongoing changes of the universe. The use of the science practices describes the behaviors students will engage in as they investigate the natural world. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. For this course, the suggested sequence is Introductory Physics with Earth/Space Science, Introductory Chemistry with Earth/Space Science, and Introductory Biology with Earth/Space Science.

Content: Chemistry

Population: General

[304598 Intro Chemistry with Earth Space Science Course Standards Document](#)

304611 - Earth Space Science

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of Earth/space science, as outlined in the Kentucky Academic Standards for Science, through the use of science and engineering practices. They experience Earth/space concepts such as energy in the Earth system, geochemical cycles, formation and ongoing changes of the Earth system, and formation and ongoing changes of the universe. Students will learn these core ideas within these topics through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Earth-Space Science

Population: General

[304611 Earth Space Science Course Standards Document](#)

304612 - Astronomy

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of basic astronomical principles, stars, planets, and galaxies.

Content: Astronomy

Population: General

304613 - Meteorology

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of weather, the atmosphere, clouds, and frontal weather conditions.

Content: Earth Science

Population: General

304614 - Oceanography

Grade Level: 9 - 12

Credits: 1

Description: This course focuses on the study of ocean landscapes, waves, currents, ocean ecology, and estuaries.

Content: Oceanography

Population: General

304620 - Environmental Science

Grade Level: 9 - 12

Credits: 1

Description: Students will develop understanding of environmental concepts as outlined in the Kentucky Academic Standards for Science, such as cycling of matter, biodiversity, earth systems, energy flow and climate, and human impact. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Environmental Science

Population: General

[304620 Environmental Science Course Standards Document](#)

304622 - AP Environmental Science

Grade Level: 9 - 12

Credits: 1

Description: The AP Environmental Science course is designed to be the equivalent of a one-semester, introductory college course in environmental science, through which students engage with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world. The course requires that students identify and analyze natural and human-made environmental problems, evaluate the relative risks associated with these problems, and examine alternative solutions for resolving or preventing them. Environmental Science is interdisciplinary, embracing topics from geology, biology, environmental studies, environmental science, chemistry, and geography. College credit is earned with a qualifying score on an AP exam.

Content: AP Environmental Science

Population: General

304631 - Geology

Grade Level: 9 - 12

Credits: 1

Description: Major concepts addressed in this course include erosion, glaciation, mountain formation, and diastrophism.

Content: Geology

Population: General

304698 - Principles of Technology with Earth/Space Science

Grade Level: 9 - 12

Credits: 1

Description: Students develop understandings of traditional physics and Earth/space science concepts, as outlined in the Kentucky Academic Standards for Science, through the use of the science and engineering practices. Students investigate concepts of force, work, efficiency, rate, and energy. Students apply conceptual understandings to industrial, technological, and personal situations. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are the skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. It is suggested that Principles of Technology with Earth/Space Science be taken before either Introductory Chemistry with Earth/Space Science or Introductory Biology with Earth/Space Science.

Content: Earth-Space Science

Population: General

[304698 Principles of Technology with Earth Space Science Course Standards Document](#)

304811 - Aerospace Science

Grade Level: 9 - 12

Credits: 1

Description: In this course, students study conceptual ideas and understandings related to aerospace sciences.

Content: Physics

Population: General

304821 - Physics I

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of physics as outlined in the Kentucky Academic Standards for Science. They experience concepts such as motions and forces, conservation of energy and the increase in disorder, interactions of energy and matter. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science.

Content: Physics

Population: General

[304821 Physics I Course Standards Documents](#)

304823 - IB Physics

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. The IB is a two year, highly academic program for juniors and seniors which can lead to their receiving first year course credit at many universities and colleges. Its internationally recognized curriculum provides able and ambitious students with a comprehensive background in Physics.

Content: Physics

Population: General

304825 - AP Physics C: Mechanics

Grade Level: 9 - 12

Credits: 1

Description: AP Physics C: Mechanics is equivalent to a one-semester, calculus based, college-level physics course, especially appropriate for students planning to specialize or major in physical science or engineering. The course explores topics such as kinematics; Newton's laws of motion; work, energy and power; systems of particles and linear momentum; circular motion and rotation; and oscillations and gravitation. Introductory differential and integral calculus is used throughout the course. College credit is earned with a qualifying score on an AP exam.

Content: AP Physics

Population: General

304826 - AP Physics C: Electricity & Magnetism

Grade Level: 9 - 12

Credits: 1

Description: AP Physics C: Electricity and Magnetism is a one-semester, calculus-based, college-level physics course, especially appropriate for students planning to specialize or major in physical science or engineering. The course explores topics such as electrostatics; conductors, capacitors, and dielectrics; electric circuits; magnetic fields; and electromagnetism. Introductory differential and integral calculus is used throughout the course. College credit is earned with a qualifying score on an AP exam.

Content: AP Physics

Population: General

304828 - AP Physics 1: Algebra-Based

Grade Level: 9 - 12

Credits: 1

Description: AP Physics 1 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics through inquiry-based investigations as they explore these topics: kinematics; dynamics; circular motion and gravitation; energy; momentum; simple harmonic motion; torque and rotational motion; electric charge and electric force; DC circuits; and mechanical waves and sound. College credit is earned with a qualifying score on an AP exam.

Content: AP Physics

Population: General

304829 - AP Physics 2: Algebra-Based

Grade Level: 9 - 12

Credits: 1

Description: AP Physics 2 is an algebra-based, introductory college-level physics course. Students cultivate their understanding of physics through inquiry-based investigations as they explore these topics: fluids; thermodynamics; electrical force, field, and potential; electric circuits; magnetism and electromagnetic induction; geometric and physical optics; and quantum, atomic, and nuclear physics. College credit is earned with a qualifying score on an AP exam.

Content: AP Physics

Population: General

304890 - IB Design Technology

Grade Level: 9 - 12

Credits: 1

Description: This course code is applicable only to schools enrolled in the International Baccalaureate program. Design Technology is designed to teach students how to adapt to new experiences, and to approach problems with the appropriate skills and techniques in design, as specified by the International Baccalaureate Organization.

Content: Principles of Technology (Applied Physics)

Population: General

304898 - Intro Physics with Earth/Space Science

Grade Level: 9 - 12

Credits: 1

Description: Students develop a conceptual understanding of physics and Earth/space science content, as outlined in the Kentucky Academic Standards for Science, through the use of the science and engineering practices. They experience physics and Earth/space science concepts such as motions and forces, conservation of energy and the increase in disorder, interactions of energy and matter, and energy in the Earth system. Students will learn these core ideas through the use of the science and engineering practices and crosscutting concepts. The science and engineering practices are skills students will use as they investigate the natural world and develop solutions to problems. The crosscutting concepts are conceptual ways of thinking that cross the domains of science. For this course, the suggested sequence is Introductory Physics with Earth/Space Science, Introductory Chemistry with Earth/Space Science, and Introductory Biology with Earth/Space Science.

Content: Physics

Population: General

[304898 Intro Physics with Earth Space Science Course Standards Document](#)